CLAIM AMENDMENTS

1 to 40. *Cancelled*

41. *(Currently amended)* A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell *in vitro* a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein ~~, variant, or fragment~~ in SEQ. ID NO:2, or fragment thereof having telomerase catalytic activity when complexed with a telomerase RNA,

~~wherein the polynucleotide hybridizes to DNA having a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below T_m in aqueous solution at 1 M NaCl;~~

~~wherein T_m is the melting temperature of double-stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and~~

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

42. *(Previously presented)* The method of claim 41, wherein the cell is a human cell.

43. *(Previously presented)* The method of claim 41, further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

44. *(Previously presented)* The method of claim 43, wherein the cell is a human cell.

45. *(Previously presented)* The method of claim 41, wherein the polynucleotide encodes a full-length, naturally occurring telomerase reverse transcriptase.

46. *(Previously presented)* The method of claim 45, wherein the cell is a human cell.

47. *(Previously presented)* The method of claim 45, further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

48. *(Currently amended)* The method of claim 41, wherein the polynucleotide ~~encodes a telomerase reverse transcriptase having the amino acid sequence of SEQ ID NO:2~~ comprises the telomerase reverse transcriptase encoding sequence in SEQ. ID NO:1.

49. *(Previously presented)* The method of claim 48 wherein the cell is a human cell.

50. *(Previously presented)* The method of claim 48 further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

51. *(Previously presented)* The method of claim 50 wherein the cell is a human cell.

52. *(Previously presented)* The method of claim 41, wherein the recombinant polynucleotide is an expression vector.

53. *(Previously presented)* The method of claim 52 wherein the expression vector is an SV40 virus expression vector, an EBV expression vector, a herpesvirus expression vector, or a vaccinia virus expression vector.

54. *(Previously presented)* The method of claim 52 wherein the expression vector is a retrovirus expression vector.

55. *(Previously presented)* The method of claim 52 wherein the expression vector is an adenovirus expression vector.

56. *(Previously presented)* The method of claim 52 further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

57. *(Previously presented)* The method of claim 52 wherein the cell is a human cell.

58. *(Currently amended)*
A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein ~~, variant, or fragment~~ in SEQ. ID NO:2, or fragment thereof having telomerase catalytic activity when complexed with a telomerase RNA,

~~wherein the polynucleotide hybridizes to DNA having a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below T_m in aqueous solution at 1 M NaCl;~~

~~wherein T_m is the melting temperature of double-stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and~~

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

59. *(Previously presented)* The method of claim 58, wherein the cell is a human cell.

60. *(Previously presented)* The method of claim 58, wherein the polynucleotide encodes a full-length, naturally occurring telomerase reverse transcriptase.

61. *(Currently amended)* The method of claim 58, wherein the polynucleotide ~~encodes a telomerase reverse transcriptase having the amino acid sequence of SEQ ID NO:2~~ comprises the telomerase reverse transcriptase encoding sequence in SEQ. ID NO:1.

62. *(Previously presented)* The method of claim 58, wherein the recombinant polynucleotide is an expression vector.

63. *(Previously presented)* The method of claim 62, wherein the expression vector is a retrovirus expression vector.

64. *(Previously presented)* The method of claim 62, wherein the expression vector is an adenovirus expression vector.

65. *(Previously presented)* The method of claim 62, wherein the cell is an epithelial cell.

66. *(Previously presented)* The method of claim 62, wherein the cell is a keratinocyte.

67. *(Previously presented)* The method of claim 62, wherein the cell is a hair matrix or hair shaft cell.

68. *(Previously presented)* The method of claim 62, wherein the cell is a hepatocyte.

69. *(Previously presented)* The method of claim 62, wherein the cell is an endothelial cell.

70. *(Previously presented)* The method of claim 62, wherein the cell is a cell of the ciliary epithelium of the eye.

71. *(Previously presented)* The method of claim 62, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.

72. *(Previously presented)* The method of claim 62, wherein the cell is a heart cell.

73. *(Previously presented)* The method of claim 62, wherein the cell is a lymphocyte.

74. *(Previously presented)* The method of claim 63, wherein the cell is an epithelial cell.

75. *(Previously presented)* The method of claim 63, wherein the cell is a keratinocyte.

76. *(Previously presented)* The method of claim 63, wherein the cell is a hair matrix or hair shaft cell.

77. *(Previously presented)* The method of claim 63, wherein the cell is a hepatocyte.

78. *(Previously presented)* The method of claim 63, wherein the cell is an endothelial cell.

79. *(Previously presented)* The method of claim 63, wherein the cell is a cell of the ciliary epithelium of the eye.

80. *(Previously presented)* The method of claim 63, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.

81. *(Previously presented)* The method of claim 63, wherein the cell is a heart cell.

82. *(Previously presented)* The method of claim 63, wherein the cell is a lymphocyte.

83. *(Previously presented)* The method of claim 64, wherein the cell is an epithelial cell.

84. *(Previously presented)* The method of claim 64, wherein the cell is a keratinocyte.

85. *(Previously presented)* The method of claim 64, wherein the cell is a hair matrix or hair shaft cell.

86. *(Previously presented)* The method of claim 64, wherein the cell is a hepatocyte.

87. *(Previously presented)* The method of claim 64, wherein the cell is an endothelial cell.

88. *(Previously presented)* The method of claim 64, wherein the cell is a cell of the ciliary epithelium of the eye.

89. *(Previously presented)* The method of claim 64, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.

90. *(Previously presented)* The method of claim 64, wherein the cell is a heart cell.

91. *(Previously presented)* The method of claim 64, wherein the cell is a lymphocyte.